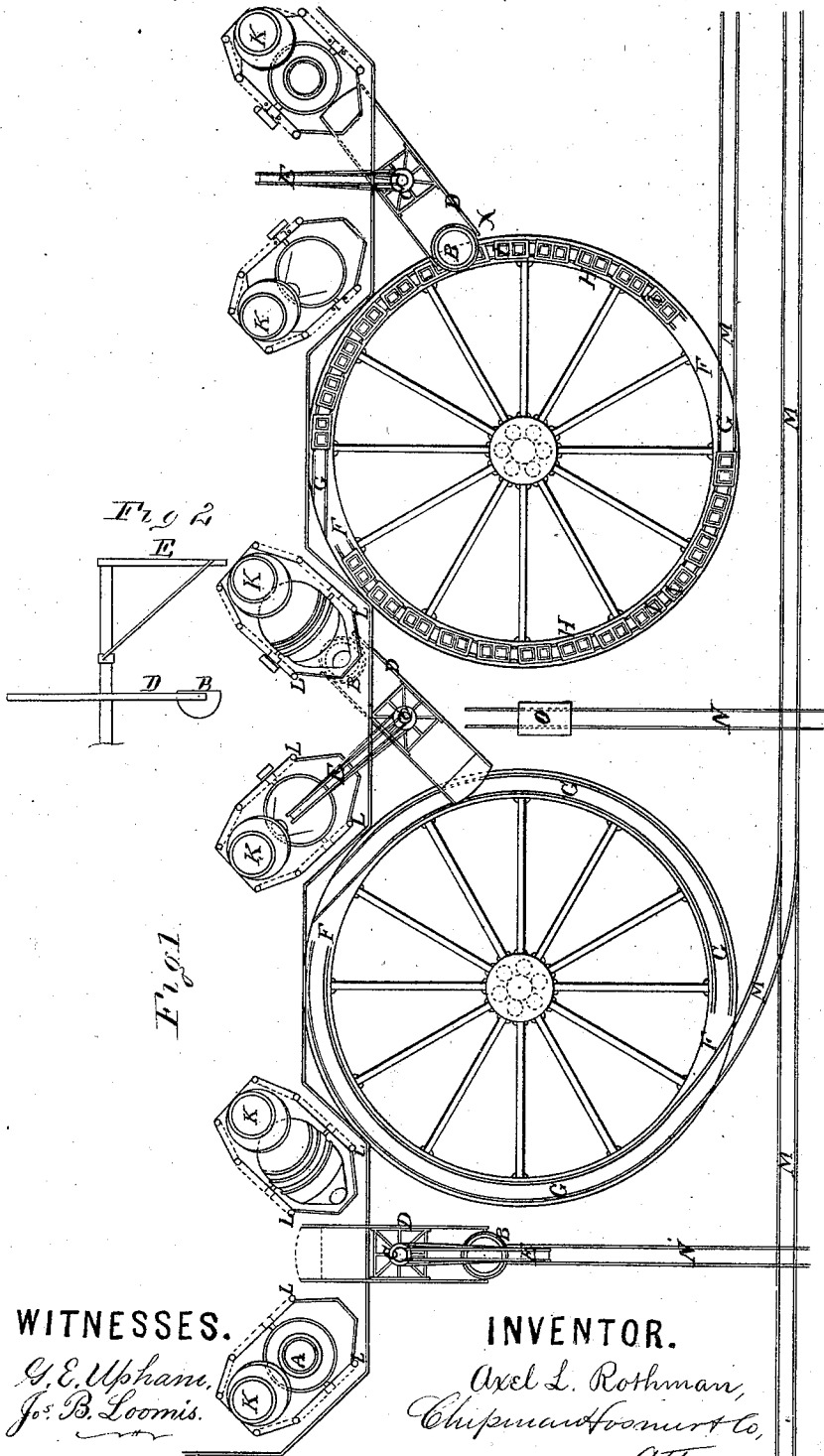


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Improvement in Bessemer Plants.

No. 133,258.

Patented Nov. 19, 1872.



WITNESSES.

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AXEL L. ROTHMAN, OF JOLIET, ILLINOIS.

IMPROVEMENT IN BESSEMER PLANTS.

Specification forming part of Letters Patent No. 133,258, dated November 19, 1872.

To all whom it may concern:

Be it known that I, AXEL L. ROTHMAN, of Joliet, in the county of Will and State of Illinois, have invented a new and valuable Improvement in Bessemer Plants; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawing making a part of this specification, and to the letters and figures of reference marked thereon.

The figure of the drawing is a representation of a plan view of my invention.

My invention has relation to a Bessemer plant and apparatus for the manufacture of Bessemer steel; and it consists in the construction and novel arrangement of turn-tables located in the converting-room, and designed to receive the ingot cars and molds and bring the same successively within reach of the ladle; also, in the construction and novel arrangement of compound hydraulic cranes to raise and carry the ladles, allowing one ladle to be filled from a pair of converters, and then transferred to a point above and emptied into the ingot-mold in waiting; and also, in the arrangement of the converters and the plant in general with relation to the cranes and turn-tables, all substantially as hereinafter described.

Referring to the accompanying drawing, A A A are the converters. B B B are the ladles. C C C are compound hydraulic cranes. D D D are the lower jibs of the compound cranes, which receive the ladles, and which raise and lower as well as revolve independent of the upper jibs. E E E are the upper jibs of the compound cranes, which raise and lower as well as revolve independent of the lower jibs. F F are the turn-tables. G G are narrow-gage tracks, which are secured to the turn-tables. H H are the ingot-cars. I I I are the ingot-molds. K K K are the converter-chimneys. L L L are columns, which support the bearings of the converters in front. M M M are fixed tracks in the converting-room, which communicate with the sectional tracks on the turn-tables as well as with the room where the ingot-molds are placed on top of the ingot-cars. N N is also a fixed track, communicating with the room where the ladles are prepared. O is a car for bringing ladles and converter, bot-

toms up, to within the reach of the jibs D or the jibs E of the compound crane.

For the purpose of my invention I locate the converters A A A in such a manner that each pair of converters will discharge into one ladle, B, which is suspended in the lower jib D, which is a part of the compound hydraulic crane C. From the fact that this jib D is short, and also owing to the location of the converters A A, I can swing jib D, which carries the ladle B, clear around without having to rack the ladle toward the center of the crane C, without coming in contact with the columns L L L which support the converters in front. The turn-tables F F, which are provided with a circular narrow-gage track, G G, are on the same level with the floor of the converting-room, and revolve on friction-rollers placed underneath. The ingot-molds I I I are placed on the ingot-cars H H H ready for filling in a separate building or room, which may be a part of the converting-room, and from thence the cars are pushed, by means of a narrow-gage locomotive or otherwise, on the circular track G provided on the turn-tables, the turn-table being meanwhile prevented from revolving by means of a suitable "stop" or catch. The circular track provided on the turn-tables I prefer to make in two or more sections, each section communicating separately with the fixed track M M which passes through the converting-room. Thus, when one section of the turn-table F has received the ingot-cars, the stop or catch is removed, and the turn-table is then revolved until it is in such a position that another section of the track G is in communication with the fixed track M M when the turn-table is again secured by means of the stop, when another set of ingot-cars, H H, are pushed onto their section of the track G, and so on.

The steel is poured out of the converter A into the ladle B, as ordinarily, after which the jib D, which carries the ladle, is put in the position, as shown at X, when the steel is tapped into the ingot-molds I I I, the ladle remaining stationary while the turn-table is being revolved by hand or otherwise, so as to bring the ingot-molds under the tap-hole of the ladle. The ladles B B are brought within the reach of the jib E by means of a car, O, on a track, N, when it is hoisted with the upper jib E and placed in its bearings provided on the lower

jib D. The bottoms for the converters are also brought in upon the car O along the tracks N from the oven where they are dried, and up under the rear end of the lower jib D, by which they are picked up and placed on a separate car, which brings it under the converters, ready for being attached to the converters.

What I claim to be able to accomplish with this arrangement is to bring the ingot-molds into the converting-room, and to bring the steel ingots and molds out again with sufficient rapidity to allow of the manufacture of steel going on without interruption.

As the Bessemer plants have been arranged heretofore, the ingot-molds are placed by two or three separate cranes in a circular pit provided in the floor of the converting-room, which molds, when filled with steel, are lifted out of the pit with the same cranes and placed on cars, which are then removed. This is a very tedious operation, considering that it must be done between each "heat."

My arrangement also enables me to employ a less number of cranes—viz., one compound crane for each pair of converters—whereas from three to four separate cranes are generally used for each pair.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a Bessemer plant, the compound crane C, consisting of an upright stationary mast provided with an upper jib, E, and a lower jib, D, both arranged to revolve, substantially as and for the purpose specified.

2. The compound cranes C, located in front of and between the converters A, substantially as specified.

3. In a Bessemer steel plant, the turn-tables F provided with the tracks G, substantially as specified.

4. The converters A, turn-tables F, compound cranes C, and ingot-molds, constructed and arranged with reference to each other, substantially as specified.

In testimony that I claim the above I have hereunto subscribed my name in the presence of two witnesses.

AXEL LEONARD ROTHMAN.

Witnesses:

A. B. MEEKER,
CHAS. I. LYNDE.